

The Adramini of Indonesia, New Guinea and adjacent Islands (Diptera: Tephritidae: Trypetinae)¹

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ABSTRACT

The tribe Adramini is redefined and a key is presented to all of the known genera. Twenty genera are presently included, 5 are restricted to the Afrotropical region, 14 occur over the Oriental, Australasian and southeast Palearctic regions and 1 genus apparently occurs in both the Afrotropical and Oriental regions. Five genera and 15 species are recorded for the area treated in this study. The following new taxa are described: *Brandiomyia* n. gen. and *B. spuria* n. sp.; *Crinitisophira* n. gen. and *C. bicolor* n. sp. and *Adrama ismayi* n. sp. Keys are presented for all known species of *Adrama* Walker, *Ichneumonosoma* de Meijere and *Terastiomyia* Bigot. *Adrama austeni* Hendel is resurrected from synonymy. *A. ceramensis* de Meijere is a new synonym of *rufiventris* (Walker). *Ichneumonosoma consors* is a new combination for *Adrama consors* Walker.

The Adramini as presently comprised is a somewhat heterogeneous group of genera which borderline the Dacinae and the Trypetinae. Most of the included genera are poorly known and the phylogenetic position of the group will remain controversial until more detailed morphological and biological data are available. Hering (1941a:2 & 1947:12) placed Adramini and Phytalmiini in the Dacinae based upon the reduced chaetotaxy: lacking ocellar, postocellar, presutural, dorsocentral, sternopleural and usually humeral bristles. The presence of a sclerotized bridge over the metathorax behind the hind coxae would also appear to be an important character for linking these 2 tribes with the Dacinae. The phylogenetic significance of the degree of sclerotization of the metathoracic postcoxal region is controversial and the loss of different sets of head and body bristles is not uncommon in the Trypetinae. I prefer to treat both of these in the Trypetinae and to treat the Dacinae as a distinctive group of fruit infesters comprising only the genera *Dacus* Fabricius, *Callantra* Walker and *Monacrostichus* Bezzi. The Dacinae are differentiated by the following characters, in combination with the reduction in chaetotaxy: basal medial cell short and broad, about 2 × longer than wide and 2 × wider than cell Cu, rather than comparatively long and narrow, about 4 × longer than wide and about equal in width to Cu; cell Cu drawn out into an elongate apical lobe which is longer than vein Cu_{1+1+2A}, rather than short lobate or straight on apical margin; body comparatively short and broad with abdomen rounded on sides and usually but little longer than wide, except in *Callantra* which have the basal segment strongly narrowed, petiolate, rather than comparatively slender bodied, abdomen usually 3–4 × longer than wide with sides almost parallel, 5th sternum of ♂ moderately concave to deeply cleft on hind margin and all sterna as broad, or broader than long in both sexes, rather than 5th sternum of ♂ straight or nearly so on hind margin and sterna usually longer than wide; ♀ with 2 convoluted, tightly coiled spermathecae, somewhat resembling a bunch of grapes, rather than 3 small round or oblong spermathecae. The dacines are characteristically colored, typically largely brown to black over the thorax, with prominent bright yellow postsutural vittae, humeri, scutellum and over

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pleura. The ♂ of most Dacinae possess a stridulatory apparatus consisting of a row of strong bristlelike hairs (pecten) on each side along hind margin of 3rd abdominal tergum and an area of dense microtrichia on the ventral surface of the wing in the area of cell Cu and Cu_{1+1stA} and excepting in rare cases both sexes with a pair of prominent tergal glands on the 5th tergum. No other fruit flies possess these features.

The Adramini and the Phytalmiini both have the metathoracic postcoxal area with a sclerotized bridge and both have a reduced number of head and body bristles. The relationship between these groups is not understood. Hering (1941a:2 & 1947:12) differentiated Adramini by having vein Cu_1 angulate and with at least a short lobe at apex of cell Cu, or if Cu_1 is straight the mid and hind femora are spinose ventrally and Phytalmiini by having Cu_1 straight, oblique and Cu not lobate, femora never spinose and wings normal or narrowed basally. McAlpine and Schneider (1978:160) presented an excellent review of the characteristics of Phytalmiini. A number of features are shared with the Adramini and the diagnostic characters for separating these are as follows: Phytalmiini having wing very slender basally with alula reduced to a narrow strip, ca $\frac{1}{2}$ or less width of cell Cu and anal cell about equal to, or narrower than Cu, rather than wing base normal in shape with alula and anal cell comparatively broad, often $2 \times$ wider than cell Cu; last section of vein Cu closing off cell Cu straight and oblique so cell Cu is subacute but not lobate at apex, rather than vein Cu angulate, bent in middle forming a distinct lobe at apex of Cu (Fig. 5a), except in *Adramoides* Hardy, from Thailand and *Sosiopsila* Bezzi, from Africa; vein Sc gently curved upward at its apex, entering costa at an acute angle, rather than sharply bent upward almost at a right angle; base of vein R bare up to forking of radial sector, not setose above over at least $\frac{1}{3}$ the length basad of forking; 2nd tarsomeres of mid and hind legs with a sharply defined, bare, shining basal area, rather than lacking such an area; seventh abdominal segment of ♀ with tergum and sternum separated by a distinct suture, rather than fused; also vanes of aedeagal apodeme of ♂ fused over most of their length, forked at tips, rather than vanes widely separated, arising separately from axis of the apodeme. Also the Phytalmiini have the outer vertical bristles absent or reduced in size, whereas the outer verticals are well developed in most Adramini, absent in most *Adrama* Walker species and in *Terastiomyia* Bigot, *Pelmatops* Enderlein, *Pseudopelmatops* Shiraki, *Brandtomyia* n. gen. and rudimentary in *Pseudosophira* Malloch. The scutellum with only 2 bristles in Phytalmiini (*Ortaloptera* Edwards) was included by McAlpine and Schneider, it has 4 scutellars and has been placed in the subtribe *Gastrozonina*, Hardy, in press), whereas Adramini typically have 4 strong scutellars, only 2 in 6 genera. The pleurotergon is short pubescent in Phytalmiini, and in Adramini covered with moderately long hair in *Adrama*, *Brandtomyia* n. gen., *Crinitisophira* n. gen., *Ichneumonosoma* de Meijere, *Munromyia* Bezzi, *Pelmatops* Enderlein, *Meracanthomyia* Hendel and *Pseudopelmatops* Shiraki and pubescent or bare in other genera which have been checked: *Adramoides* Hardy, *Ichneumonopsis* Hardy, *Pseudosophira* Malloch, *Sosiopsila* Bezzi and *Terastiomyia* Bigot. In Phytalmiini the spiracular openings are near the base of the 7th abdominal segment, the Adramini which have been checked typically have the spiracular openings near basal $\frac{1}{3}$ of 7th, situated at base in *Terastiomyia* and probably others.

The significance of the presence or absence of a sclerotized metathoracic postcoxal bridge is not understood, this refers to the area immediately behind and between the hind coxae. The entire area is sclerotized in Phytalmiini and in the 10 genera of Adramini which have been checked is predominantly or entirely sclerotized in *Adrama*, *Adramoides*, *Ichneumonosoma*, *Meracanthomyia*, *Pelmatops*,

Pseudopelmatops and *Terastiomyia* and the area is membranous in *Brandtomyia*, *Crinitisiphira* and *Pseudosiphira*.

The ♂ genitalia have not been examined for most of the Adramini. In the genera *Adrama* and *Terastiomyia* (Fig. 12e) the vanes of the aedeagal apodeme are widely separated, very similar to the condition found in the *Gastrozonina* (Acanthonevrini) and in the Dacinae.

It should be noted that in my description of *Robertsonomyia* Hardy, 1983b:228, I questioned the interpretation of the sclerites of the 7th abdominal segment being divided by a distinct suture in Phytalmiini. I have rechecked this and now agree that it is a valid character. In specimens which have the ovipositor base turgid, cylindrical, a faint longitudinal suture extends down each side about 4/5 the length of the segment and separates the tergum from the sternum. In specimens which have the abdomen flattened dorsoventrally the sides are distinctly marginate.

The Adramini lack the following bristles: ocellar, postocellar, sternopleural (except in *Crinitisiphira* n. gen.), and usually dorsocentral and humeral.

Munro (1935:198) says the larvae of Adramini are also very distinctive from other fruit flies known to him because of the characteristic features of the anterior spiracles (refer to Leefmans, 1915, pl. 2 and Munro, 1924:9, Fig. 3). Munro (1924:8) said "the apparatus has a flattened treelike structure; it is a deep yellow in colour, being conspicuous against the white colour of the body. The base, which leads from the trachea, is short and wide, giving 1 branch upwards, another downwards, the upper being somewhat the longer. On the inner surfaces of the branches several irregular branchlets are given off, some of which dichotomize. With the exception of the tips of the ultimate branchlets, which project on the outer surface as an irregular double or triple row, the whole structure is situated below the integument. This is very transparent here, so that the spiracles are clearly visible."

Twenty genera are presently placed in Adramini. Five are restricted to the Afrotropical region, 14 occur over the Oriental and Australasian regions and into southern China and Japan and with *Meracanthomyia* Hendel apparently occurring in both the Afrotropical and Oriental regions. Five genera are known to occur in the Indonesian-New Guinea area. The tribal limits have been controversial and several genera which have previously been placed here have now been moved to other tribes of Trypetinae: *Callistomyia* Hering, *Agnostophana* Hering, *Colobostrotter* Enderlein, *Cleltamiphanes* Hering and *Ortaloptera* Hendel are placed in Acanthonevrini (Hardy 1977:66 and in press); *Cyclopsia* Malloch has been placed in Euphrantini (Hardy 1983a:154).

The habits and biology of Adramini are unknown except for a few bits of information. *Adrama determinata* (Walker) and *austeni* Hendel, which are widespread over the Oriental region, infest the seeds of tea (*Thea sinensis* L.) (Leefmans, 1915 and Menzel, 1929) and are considered serious pest. *Munromyia nudiseta* Bezzi infests the seeds of olive (*Olea* spp.) and is referred to as the olive seed fly. Munro 1924:6 and 1935:199, indicated that species of *Coelopacidia* Enderlein are borers in stems of plants.

Acronyms for Institutions where collections are located

AMS	Australian Museum, Sydney, Australia
BMNH	British Museum (Natural History), London, England, UK
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii, USA
CIHS	Commonwealth Institute of Health, University of Sydney, Australia
MNHP	Muséum National d'Histoire Naturelle, Paris, France

MSNG	Museo Civico di Storia Naturale, Genoa, Italy
NHNV	Naturhistorisches Museum, Vienna, Austria
RNHL	Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands
UH	University of Hawaii, Honolulu, Hawaii, USA
UMO	Hope Entomological Collections, University Museum Oxford, Oxford, England
UQM	University of Queensland Museum, St. Lucia, Brisbane, Australia
USNM	National Museum of Natural History, Smithsonian Institution, Washington D.C. USA
ZMHB	Zoologisches Museum, Humboldt Universität, East Berlin, Germany, DDR
ZMUA	Zoologisch Museum, Universiteit van Amsterdam, Netherlands

KEY TO KNOWN GENERA OF ADRAMINI

1. Eyes borne on prominent stalks 2
 Eyes not stalked 3
- 2(1). Fronto-orbital and genal bristles absent; eye stalks elongate, often as long as the body; palpus spatulate . . . 2 species from India, Nepal, China *Pelmatops*
 One to 2 pairs each of fronto-orbital and genal bristles; eye stalks comparatively short, subequal in length to thorax; palpus long, narrow, straight sided . . . 3 species from China, India, Japan, Taiwan *Pseudopelmatops*
- 3(1). At least 1 pair of femora with prominent ventral spines 4
 Femora lacking ventral spines 10
- 4(3). No spur veins on R_{2+3} or M_{1+2} 5
 With a long spur vein on upper side of R_{2+3} and a short spur on underside of M_{1+2} just basad of r-m crossvein (Fig. 9b); cell 1st M_2 cleaver shaped; only front femur with 2 short bristlelike spines on posteroventral surface near apical $\frac{1}{3}$. . . 1 species, New Ireland *Brandiomyia* n. genus
- 5(4). Not with only middle femur spinose ventrally 6
 Only middle femur with ventral spines; pleurotergon bare; both pleurotergon and metapleuron polished black, with a dense patch of pubescence on lower edge of latter; largely yellow species with vittate mesonotum; no prescutellar bristles . . . 1 species, Thailand *Adramoides*
- 6(5). Inferior fronto-orbital bristles present; face not over half as long as head height; usually with ventral spines on mid and hind femur, if spinose only on front femur (*Nitobeia* Shiraki) the apex of cell Cu is vertical; cubital cell with a short apical lobe or not lobate 7
 Inferior fronto-orbitals lacking; face elongate, equal in length to eye and to 3rd antennal segment; only front femur with 4 stout posteroventral spines, no spines on mid or hind femora; lobe of cell Cu nearly equal to vein $Cu_{1+11+12}$; only 2 scutellar bristles; *Ichneumon*-like species . . . 1 species, Burma *Ichneumonopsis*
- 7(6). Mid, hind and usually front femora with ventral spines; cell Cu lobate; arista usually plumose 8

- Only front femur spinose ventrally; apex of Cu vertical, not lobate (Shiraki, 1933, pl. IX, Fig. 5); arista bare ... 1 species, Taiwan ... *Nitobeia*
- 8(7). Antenna elongate, much longer than head (Ref. Hardy, 1973:136-139, Fig. 59, 60, 61) ... 9
 Antenna short by comparison, shorter than face; pleurotergon covered with fine hairs; wing markings as in Fig. 2a, 4 ... 13 species from over Oriental and Australasian regions ... *Adrama*
- 9(8). Arista plumose; only 2 scutellar bristles; mesonotal suture complete; 3rd costal section short, about $\frac{1}{4}$ as long as 2nd section ... 1
 African, 7 Oriental species ... *Meracanthomyia*
 Arista bare or nearly so; 4 scutellars; suture not complete on mesonotum; 3rd costal section at least $\frac{1}{2}$ as long as 2nd ... 1 African species ... *Munromyia*
- 10(3). With well developed humeral bristles ... 11
 Humerals absent ... 15
- 11(10). Mesothoracic suture incomplete; 4 scutellar bristles ... 12
 Mesothoracic suture complete, only 2 scutellars ... 2 African species ... *Trypanophion*
- 12(11). Sternopleural bristles absent ... 13
 Sternopleural and mesopleural bristles well developed; arista bare and vein R_{4+5} bare ... 5 species and 3 subspecies from Afrotropical region ... *Coelotrypes*
- 13(12). With only 1 pair of inferior fronto-orbital bristles ... 14
 With 4 pairs of inferior fronto-orbitals ... 1 species from Japan ... *Matsumurania*
- 14(13). Arista plumose; prescutellar bristles well developed; face vertical in profile; antenna inserted near upper $\frac{1}{4}$ of eye height ... 1 species, Thailand ... *Heterosophira*
 Arista pubescent; prescutellars absent; face deeply concave and antenna situated at middle of eye ... 9 Afrotropical species ... *Coelopacidia*
- 15(10). At least 1 pair of inferior fronto-orbital bristles; vein M_{1+2} not curved upward at apex ... 16
 Inferior fronto-orbitals absent; vein M_{1+2} curved upward at apex narrowing cell R_5 ... 3 species Indonesia: Maluku and Sulawesi ... *Terastomyia*
- 16(15). With 4 well developed scutellar bristles ... 17
 Only basal scutellars present ... 19
- 17(16). Vein R_{4+5} bare except for a few setae above at base; 3rd costal section (cell Sc) $\frac{1}{2}$ or less as long as 4th section (cell R_1); dorsocentral bristles weak and situated near postalars ... 18
 Vein R_{4+5} setose above over most of its length; 3rd costal section subequal to 4th; wing markings as in Hardy, 1973, pl. II, Fig. 19; dorsocentral bristles strong, about equal in size to supraalars and about half-way between supraalars and postalars ... 1 species, Philippine Islands ... *Antisophira*
- 18(17). Pleuroterga haired; with 2 pairs of black, well developed inferior fronto-orbital bristles; outer scapular bristles present and dorsocentral bristles distinctly in front of postalars ... 1 species, Maluku ... *Crinitisophira* n. genus

- Pleuroterga bare or short pubescent; only 1 pale inferior fronto-orbital; outer scapulars absent and dorsocentrals in line with postalaras . . . 1 species, Philippines *Pseudosphira*
- 19(16). Wing hyaline, except for a narrow brown costal band; cell Cu with a short pointed lobe at apex; only 1 pair of inferior fronto-orbital bristles (except in *heinrichi*) . . . 3 Oriental, Australasian species *Ichneumonosoma*
- With a prominent brown spot in upper apex of wing; apex of cell Cu vertical or nearly so, no lobe at apex; 2 pairs inferior fronto-orbitals . . . 3 African species *Sosiopsila*

Genus *Adrama* Walker

Adrama Walker, 1859, J. Proc. Linn. Soc. Lond., Zool. 3:117. Type-species, *selecta* Walker. By monotypy.

Acanthipeza Rondani, 1875, Annali Mus. Civ. Stor. Nat. Giacomo Doria 7:438. Type-species, *maculifrons* Rondani. By monotypy.

Fitting in the group of genera characterized by having ventral spines on the femora and the pleuroterga covered with fine hairs. It is readily differentiated from all known genera from Indonesia-New Guinea by having 2 rows of short, stout, ventral spines on mid and hind femora and usually 1 and sometimes 2 posteroventral spines near apical $\frac{2}{3}$ of each front femur, in combination with the wing markings (Fig. 2a); very broad postcoxal metathoracic bridge; prominent lobe at apex of cell Cu and 3rd antennal segment shorter than face.

Rather large, showy species with distinctive habitus. Lacking the following bristles: occipital, ocellar, postocellar, outer vertical, (except in *determinata* Walker and *biseta* Malloch), genal, dorsocentral, presutural, prescutellar, humeral, sternopleural and pteropleural. Head slightly higher than long, with front gently sloping and antenna situated near upper $\frac{2}{5}$ of head as seen in direct lateral view. Face gently concave in median portion with epistomal margin slightly protruded. Third antennal segment about $3 \times$ longer than wide and usually reaching about $\frac{2}{5}$ – $\frac{3}{4}$ length of face. Arista short plumose and with a row of short hairs along inner margin. Occiput moderately swollen, at widest point about $\frac{2}{3}$ as wide as 1 eye. Gena rather broad, length equal to nearly $2 \times$ width of 3rd antennal segment. With 2–3 inferior fronto-orbital bristles and only 1 pair of superior fronto-orbitals. With 4 strong black scutellar bristles, except in *biseta* Malloch, from Queensland, *nigrifrons* Hardy, from Laos and *ismayi* new species, from New Britain, which have only 2. Mid femur with 2 rows of short ventral spines on apical half and hind with 2 rows of spines on apical $\frac{1}{3}$ – $\frac{2}{5}$. Mid tibia with 1 strong apical spine. Pleurotergon rather densely covered with fine pale hairs. Wing as in Fig. 2a, with 3rd costal section comparatively short, about $\frac{1}{2}$ as long as 2nd section. Crossvein r-m situated distinctly beyond middle of cell 1st M_2 , except in *ismayi* n. sp., and with a prominent pointed lobe at apex of cell Cu. Setae on vein R_{4+5} extending slightly beyond level with r-m crossvein and over at least apical $\frac{1}{2}$ of node of radial sector. Abdomen moderately long and slender, over $3 \times$ longer than wide with sides almost parallel. Segment 1 + 2 elongate, subequal in length to remainder of abdomen, excluding ♀ ovipositor. Sixth tergum of ♀ well developed, ovipositor base cylindrical, about as long as terga 4–6 and with spiracular openings on venter at basal $\frac{1}{3}$ – $\frac{2}{5}$ of segment. Three oblong to gourd shaped spermathecae and apex of piercer notched on edges. ♂ genitalia as in Fig. 7, with vanes of aedeagal apodeme widely forked, rather similar to those of *Dacus*.

Presently 13 known species from the Oriental and Australasian regions, 8 are recorded from the area treated in this study.

Biology. *Adrama determinata* (Walker) and *austeni* Hendel have been recorded infesting the seeds of Tea in Indonesia and Sri Lanka.

KEY TO KNOWN SPECIES OF ADRAMA

1. Scutellum with only 2 bristles 2
 - Four strong scutellars present 4
- 2(1). With a single black mark on lower median portion of face; disc of scutellum mostly black; crossvein r-m beyond middle of cell 1st M_2 3
 - With 2 black spots on face; scutellum all rufous; r-m near base of 1st M_2 (Fig. 4) ... New Britain *ismayi* n. sp.
- 3(2). Front, pleura and abdomen entirely rufous; mesonotum predominantly rufous ... N. Queensland *biseta*
 - Front with a large, velvety black median spot; pleura with polished black markings; sterna of abdomen black, also terga 1, 4-5 ♂ and 4-6 ♀ black ... Laos *nigrifrons*
- 4(1). Thorax entirely rufous, no black markings on face 5
 - With conspicuous black markings on thorax and on face 6
- 5(4). Crossvein r-m covered by a brown fascia and situated at apical 2/5 of cell 1st M_2 ... Solomon and Bismarck Islands *rufithorax*
 - Crossvein r-m not covered by a brown fascia and near middle of cell 1st M_2 ... Solomon Islands *fuscoapicata*
- 6(4). Pleura with glossy black markings covering most of meso and metapleuron; metanotum and disc of scutellum black; face with a single black median mark, except in *rufiventris* (Walker) 7
 - Pleura, metanotum and scutellum rufous; face with 2 small brown to black spots on epistomal margin 12
- 7(6). Front tarsus brown to black; front with 1 or 2 black marks on anteromedian portion; mesopleural and supraalar bristles present 8
 - Front tarsus entirely reddish yellow; front, except the narrow orbits, black fading into reddish yellow above middle; mesopleurals and supraalars lacking ... Malaysia (Sabah) *flavimana*
- 8(7). The glossy black marking over mesopleuron continuous over sternum and contiguous over venter and covering mesosternum; black mark over pteropleuron continuous over hypopleuron and postcoxal metathoracic area; face with a prominent black mark on lower median margin 9
 - Black markings on pleura not continuous over venter, mesosternum and ventral portion of sternopleuron, also postcoxal metathoracic area yellow to rufous; face with 2 small black spots on lower margin ... Indonesia, New Guinea, Philippines *rufiventris*
- 9(8). With a short black vitta down each side of upper orbit to superior fronto-orbital bristle; brown band from wing margin over r-m crossvein ending at vein M_{1+2} ; outer vertical bristles lacking 10

- Upper portion of head rufous except for a comparatively small black mark over upper occiput and ocellar triangle; brown band over r-m extending to at least middle of cell 1st M₂ (Fig. 2a); outer verticals present . . . Indonesia, Malaysia, Singapore, southern Philippines . . . *determinata*
- 10(9). Abdomen rufous except at base . . . 11
Terga 4 and 5 black in both sexes; cell 2nd M₂ all brown . . .
Burma, India, Laos, Taiwan, Thailand and probably Philippines . . . *apicalis*
- 11(10). *Cell 2nd M₂, entirely brown; rays of arista short, about ½ width of 3rd antennal segment . . . Burma . . . *media*
Cell 2nd M₂ largely subhyaline; rays of arista subequal in length to width of 3rd segment . . . Sri Lanka and South India . . . *austeni*
*I question the validity of these characters, these may prove to be synonyms.
- 12(6). *Presutural ½ of mesonotum glossy black and black setose . . .
Maluku, New Guinea, Queensland, Australia . . . *selecta*
Mesonotum with a narrow yellow to rufous median vitta extending to anterior margin and with pale yellow setae along the vitta . . .
Solomon and Bismarck Islands, New Guinea, Queensland, Australia . . . *spinata*
*These characters show some variation, some Solomon Island specimens have only a faint indication of the median vitta anterior to the suture.

Adrama determinata (Walker)

Fig 2a-c

- Dacus determinatus* Walker, 1856, J. Proc. Linn. Soc. Lond., Zool. 1:133. Type-locality: Sarawak, Borneo. Type ♂ in BMNH.
- Acanthipeza maculifrons* Rondani, 1875, Annali Mus. Civ. Stor. Nat. Giacomo Doria 7:438. Type-locality: Borneo. Type ♀ in MSNG.
- Dacus cylindricus* van der Wulp, 1880, Tijdsch. Entomol. 23:181. Type-locality: Java. Type ♂ in ZMUA.

Diagnosis. I have previously (Hardy 1959:168, 1973:124; 1974:72) treated *austeni* Hendel (1912:12) from Sri Lanka and India as a synonym of *determinata*. This is not correct, I am resurrecting this from synonymy. I have examined further specimens from Sri Lanka and southern India and *austeni* is differentiated by: lacking outer vertical bristles; having a large black mark covering upper occiput, vertex and extending as a black vitta down each orbit to superior fronto-orbital bristle; the setae of vertical row of each side of back of occiput all black; the polished black mark over the katapisternum and lower portion of the anepisternum extending along suture separating anepimeron over half its length so yellow-white marking over anepimeron and upper anepisternum is distinctly angulate; brown crossband from costa over r-m crossvein ending at vein M₁₊₂ and ♀ spermathecae 3 × longer than wide, gourd shaped, expanded on both ends (Fig. 1a); apex of ♀ piercer as in Fig. 1b. In *determinata* the outer vertical bristles are usually well developed; black mark on upper portion of head is comparatively small, confined to upper median portion of occiput, middle of vertex and ocellar triangle; the vertical row at back of

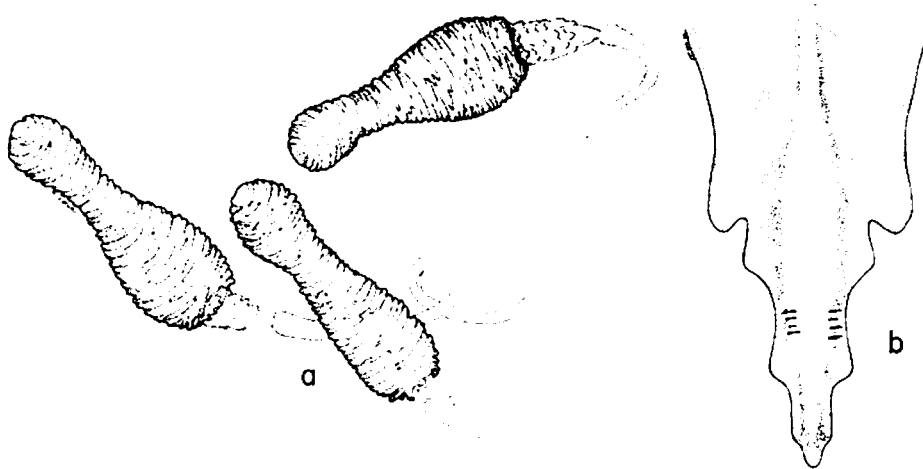


FIGURE 1. *Adrama austeni* Hendel. a. ♀ spermathecae; b. apex of ♀ ovipositor.

occiput with yellow setae ventrally; the yellow-white mark over anepimeron and anepisternum is gently concave on anterior margin and extends almost to base of suture between the sclerites; brown band over r-m extending well into cell 1st M_2 (Fig. 2a) and ♀ spermathecae oblong, gently tapered to anterior end (Fig. 2c). Specimens which I have recorded from Thailand (Hardy, 1973:124) apparently are *apicalis* Shiraki, from Taiwan, they differ from *determinata* by having terga 4–5 black in both sexes.

In addition to characters noted above, front with a velvety black mark over lower median portion and face with a subshining mark over middle just above epistomal margin. Two pairs inferior fronto-orbital bristles on lower $\frac{1}{3}$ of front and upper superior fronto-orbitals situated at upper $\frac{1}{4}$. Outer vertical bristles typically well developed but variable in size, rudimentary to absent in some specimens. Third antennal segment extending about $\frac{4}{5}$ length of face and rays of arista equal in length to about $\frac{2}{3}$ width of 3rd antennal segment. Thorax predominantly shining black with yellow-white markings on humerus, median longitudinal vitta on mesonotum, along suture, margins and venter of scutellum and over pleuroterga. Anterior portion of sternopleuron (katepisternum) and mesosternum broadly polished black. Hind coxa, trochanters and extreme outer edge of hind femur marked with brown to black. Postcoxal metathoracic region entirely sclerotized. Legs predominantly yellow, front tibia and tarsus brown and with a tinge of brown on hind tibia. Abdomen prodominantly rufous, black over 1st tergum and sometimes down middle of 2nd. Specimens from the Philippines have terga 4–5 mostly black and probably best fit *apicalis*. Wing as in Fig. 2a with brown mark over r-m crossvein usually extending about $\frac{2}{3}$ through middle of cell 1st M_2 . Apex of ♀ piercer as in Fig. 2b. Spermathecae as in Fig. 2c.

Length: body 9.0–10.0 mm; wings 8.0–8.5 mm.

Distribution. Indonesia, Malaysia and the Philippines.

Specimens examined. Types of all 3 taxa. Numerous specimen from Indonesia (Java); Malaysia (Sabah, Sarawak and Malaysia Barat); Singapore; and the Philip-

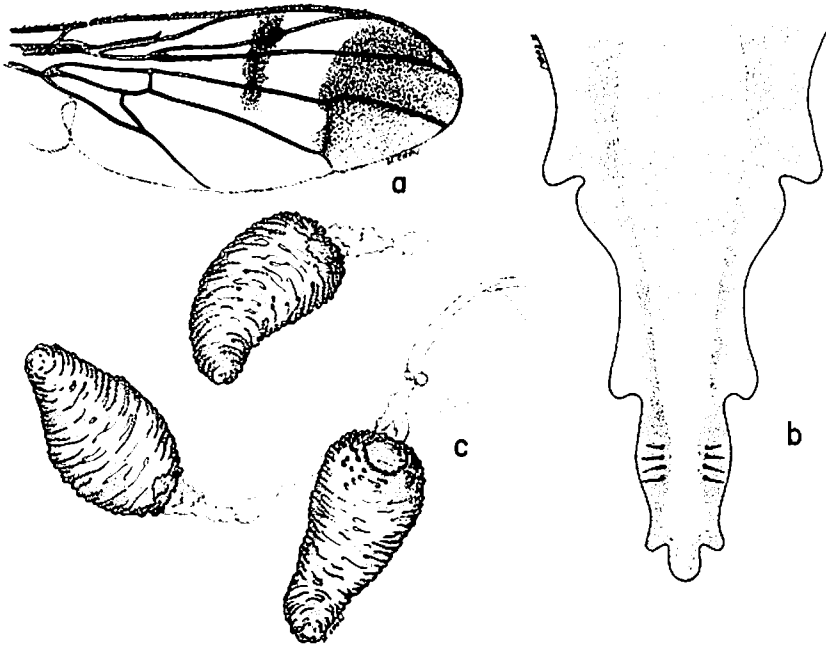


FIGURE 2. *Adrama determinata* (Walker). a, wing; b, apex of ♀ ovipositor; c, ♀ spermathecae.

pinus (Balabac, Mindanao and Palawan). It has previously been recorded from Burma, India, and Sri Lanka, I cannot confirm these records.

Biology. Infest the seeds of tea and is considered an important pest of this plant, it is referred to as the Tea seed fly.

Adrama flavimana Malloch

Adrama flavimana Malloch, 1939, Proc. Linn. Soc. N.S. Wales 64(3-4):333. Type-locality: Sandakan, Sabah. Type ♂ in USNM.

Diagnosis. Fitting in the group of species characterized by having glossy black markings covering most of the mesopleuron and metapleuron and the metanotum and disc of scutellum black, also the face with a single black mark over lower median portion. It is apparently differentiated from all other known species by lacking mesopleural and supraalar bristles; having the front tarsus entirely reddish yellow; and the front predominantly black except for the narrow orbits, fading into reddish yellow above middle. I find no other differentiating features in the original description and have not had occasion to examine specimens of this species, except for the type.

Length 9.0 mm.

Distribution. Sabah, Malaysia. Known only from type ♂.

Specimens examined. Type.

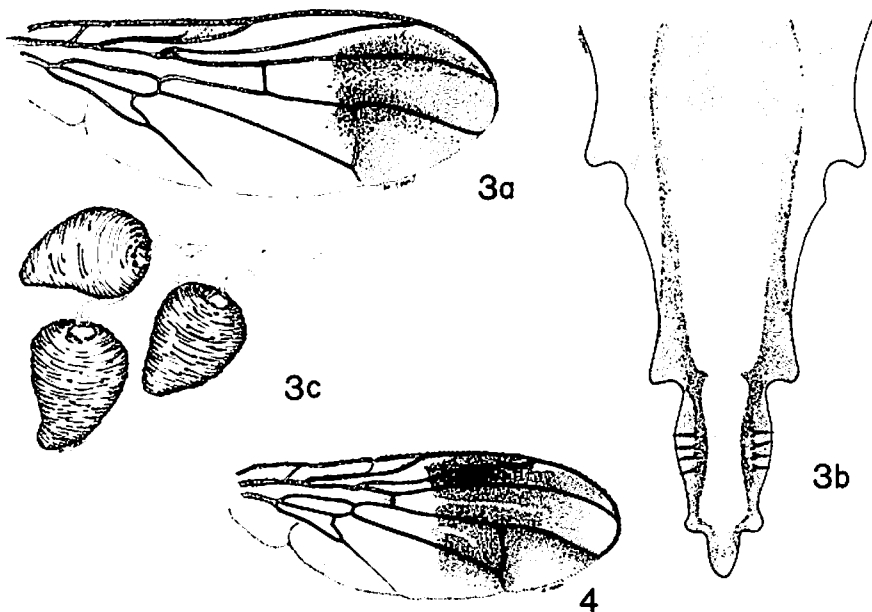


FIGURE 3. *Adrama fuscoapicata* Malloch. a, wing; b, apex of ♀ ovipositor; c, ♀ spermathecae.

FIGURE 4. *Adrama ismayi* new species. Wing.

Adrama fuscoapicata Malloch

Fig. 3a-c

Adrama fuscoapicata Malloch, 1939, Ann. Mag. Nat. Hist. 4:249. Type-locality: Guadalcanal. Type ♂ in BMNH.

Diagnosis. Fitting in a complex with *rufithorax* Malloch by having the thorax and the face yellow to rufous, lacking black markings. Differentiated from *rufithorax* by lacking a brown marking over r-m crossvein; r-m slightly to distinctly before middle of cell 1st M_2 and apex of ♀ ovipositor differing as shown in Fig. 3b.

A yellow to rufous species except for an opaque black spot in lower median portion of front; brown to black in middle of ocellar triangle; brown front tibia and tarsus and with hind tibia tinged with brown. Usually with 2 pairs of small inferior fronto-orbital bristles on lower $\frac{1}{4}$ of front (Malloch's type had 3 on 1 side) and with 1 pair moderately strong superior fronto-orbitals near upper $\frac{1}{5}$. Anteroventral spine on front tibia well developed almost as long as width of tibia. Wing predominantly subhyaline, faintly tinged with yellow or pale brownish, with apical $\frac{1}{2}$ covered by a large brown mark. Venation as in Fig. 3a. Female spermathecae about $2 \times$ longer than wide and only slightly tapered apically (Fig. 3c). Spiracular openings near basal 3rd of 7th segment. Piercer comparatively broad, gradually tapered at apex and distance between 2 pairs apical teeth equal to $\frac{2}{3}$ distance between 2nd and 3rd pair of teeth (Fig. 3b). Otherwise like *rufithorax*.

Length: Body 9.0–9.5 mm; wings 11.0–11.4 mm.

Distribution. Solomon Islands.

Specimens examined. Type and 1 paratype (BMNH). Eight specimens from following localities in Solomon Islands: Vella, Lavella, Pusioma, 17.XI.1963, in secondary growth clearing, (P. Shanahan); New Georgia group, Gizo I, 1-100 m, 11.VII.1959-XII.1975 (J.L. Gressitt and N.L.H. Krauss); New Georgia group, Kolombangara I, Kukunbu, SW Coast, 1-12 m, 10.VII.1959 (J.L. Gressitt); San Cristobal, Kira-kira, 0-50 m, 15.XI.1964 (R. Straatman); Guadalcanal, Sahuluathea, 200-400 m, I.1973 (N.L.H. Krauss); Guadalcanal, Tenaru Creek, 10-50 m, 7.V.1964 (R. Straatman).

Adrama ismayi new species

Fig. 4

Diagnosis. Fitting in a species complex with *biseta* Malloch, from Queensland, and *nigrifrons* Hardy, from Laos, by having only apical scutellar bristles present. It is differentiated from other known species by having 2 black spots on lower margin of face, not 1; 3 pairs of inferior fronto-orbital bristles, not 2; scutellum yellow to rufous, not black on disc; crossvein r-m situated near basal $\frac{1}{4}$ of cell 1st M_2 , not distinctly beyond middle; no brown fascia extending from wing margin over r-m crossvein; brown marking over apex of wing more extensive, extending basad almost to level with apex of vein R_1 and with a milky white transverse fascia over wing just beyond level with r-m crossvein and with apex of cell R_5 subhyaline, rather than with a distinct brown fascia from margin over r-m, brown marking in apex of wing confined to area distad of m crossvein and apex of R_5 brown and lacking a transverse hyaline band over middle of wing.

Female. Yellow to rufous except for a pair of submedian black vittae on mesonotum extending from near anterior margin to about level with supraalar bristles, small velvety black spot in lower median portion of front, 2 black spots on lower margin of face, black ocellar triangle, brown to black front tibia and tarsus, and a tiny black spot on each side of thorax below wing base; also with a transverse ivory-white band over hind portion of each mesopleuron and a longitudinal ivory-white mark over upper margin of each metapleuron. Head as in most *Adrama* but with 3rd antennal segment slightly longer than normal, extending almost to oral margin. Arista moderately long plumose, longest rays about equal to $\frac{3}{4}$ width of 3rd antennal segment. Two pairs inferior fronto-orbitals, situated close together at level with upper margin of lunule and 1 pair, moderately spaced, situated near lower $\frac{1}{4}$ of front. Interfrontal area rather densely covered with short yellow setae. Supracervical, postoccipital and genal setae yellow. Thorax and legs as noted above with 1 intrapostalar bristle developed on left side, this is no doubt an aberration. Posteroventral spine of front tibia moderately developed, its length equal to $\frac{2}{3}$ width of tibia. Wing as noted above and as in Fig. 4. Abdomen rufous, tinged with brown to black on sides of basal segment of ovipositor. Sides of abdomen almost parallel. Sixth tergum about $\frac{2}{3}$ - $\frac{3}{4}$ as long as 5th. Basal segment of ovipositor subequal in length to terga 4-6. Piercer not extended for study.

Length: Body excluding ovipositor, 9.2 mm; wings 8.0 mm.

Male unknown.

Holotype ♀ (BPBM 13512), W NEW BRITAIN, Dami, 3.II.1983, collected in forest (J.W. Ismay).

Etymology. It is a pleasure to name this species after Dr. J.W. Ismay who has collected extensively in Papua New Guinea and has added greatly to our knowledge of the Diptera fauna.

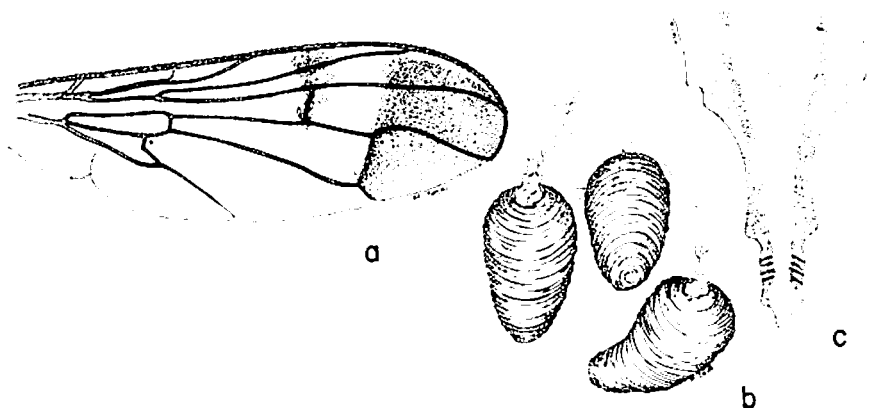


FIGURE 5. *Adrama rufithorax* Malloch. a, wing; b, ♀ spermathecae; c, apex of ♀ ovipositor.

Adrama rufithorax Malloch

Fig. 5a-c

Adrama rufithorax Malloch, 1939, Ann. Mag. Nat. Hist. 4:249. Type-locality: Russell Island. Type ♂ in BMNH.

Diagnosis. Fitting in the same species complex with *fuscoapicata* Malloch by being rufous except for a small opaque brown to black spot in lower median portion of front and for the brown to blackish front tibia and tarsus. It is differentiated by having a brown fascia from wing margin extending over r-m crossvein and having r-m well beyond middle of cell 1st M_2 , near apical $\frac{2}{3}$ of cell (Fig. 5a). Also apex of ♀ piercer more slender, with sides nearly parallel and distance between 1st and 2nd pair of lateral teeth about $\frac{1}{2}$ distance between 2nd and 3rd pair (Fig. 5c). Spermathecae as in Fig. 5b. Otherwise fitting description of *fuscoapicata*.

Length: Body 8.0–8.75 mm; wing 9.5–10.5 mm.

Distribution. Solomon and Bismarck Islands.

Specimens examined. Type. Seven specimens from following localities: SOLOMON ISLANDS: Florida Islands, Nggela I, Haleta, 250 m, 17.X.1964 (R. Straatman); New Georgia group, Gizo, I, 50–120 m, 16–26.IV.1964 (J. Sedlacek) and BISMARCK ISLANDS: Massau, Talumalaus, 19.I.1962, Noona Dan Exp, 61–62.

Adrama rufiventris (Walker)

Fig. 6a-b

Enicoptera rufiventris Walker, 1860, J. Proc. Linn. Soc. Lond., Zool. 5:163. Type-locality: Amboina, Maluku. Type ♀ in BMNH.

Adrama ceramensis de Meijere, 1914, Tijdsch. Entomol. 57:192. Type-locality: Ceram, Maluku. Type ♀ in ZMUA. Recorded as *A. selecta* de Meijere, 1913, Dijdr. Dierk. Afl. 19:64. nec Walker. Misidentification. New synonym. Based upon study of types and comparison of specimens from the Maluku.

Diagnosis. Fitting in the group of species characterized by having prominent black markings over the pleura and over disc of scutellum. It is differentiated from others by having the black markings on pleura not continuous over venter, with

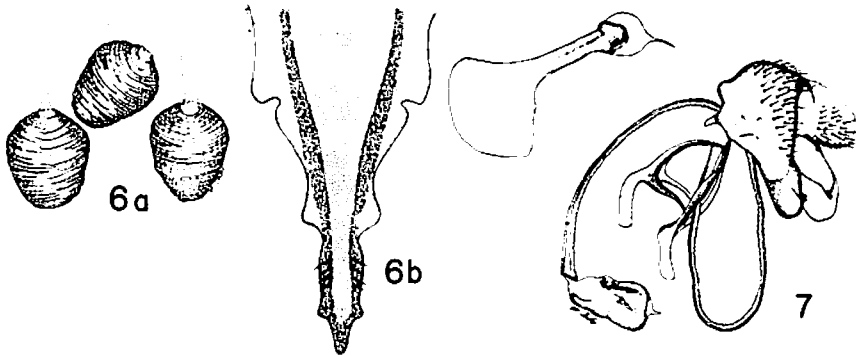


FIGURE 6. *Adrama rufiventris* (Walker). a, ♀ spermathecae; b, apex of ♀ ovipositor.

FIGURE 7. *Adrama selecta* Walker. ♂ genitalia.

mesosternum, ventral portion of sternopleuron and postcoxal metathoracic area yellow to rufous, rather than with black markings continuous over venter of thorax, covering mesosternum, lower portion of sternopleuron and postcoxal metathoracic area; also by having 2 small black spots on lower margin of face, rather than with a single prominent black mark on lower median margin. Otherwise fitting description of *determinata*. Female with 3 oval spermathecae (Fig. 6a) and apex of piercer as in Fig. 6b. For further descriptive details refer to Hardy, 1974:101, under *selecta*.

Length: Body 8.5–9.5 mm; wings 6.75–7.5 mm.

Distribution. Maluku, New Guinea and Philippine Islands.

Specimens examined. Types of both taxa and specimens from the Philippines as recorded.

Remarks. I have previously (Hardy, 1959:161 and 1974:101) followed Osten Sacken (1881:479) in treating *rufiventris* as a synonym of *Adrama selecta* Walker. This is not correct, I found the type ♂ of *selecta* in UQM and it is differentiated from *rufiventris* by having the pleura, metanotum and scutellum all rufous.

Adrama selecta Walker

Fig. 7

Adrama selecta Walker, 1859, J. Proc. Linn. Soc. Lond., Zool. 3:118. Type-locality: Aru Island. Type ♂ in UQM.

Psila cruciata Walker, 1865, J. Proc. Linn. Soc. Lond., Zool. 8:126. Type-locality: New Guinea. Type ♂ apparently lost. A synonym of *selecta* according to Osten Sacken (1881:471).

Adrama papuaensis Malloch, 1939, Proc. Linn. Soc. N.S.W. 64:333. Type-locality: Wewak, Papua New Guinea. Type ♂ in CIHS.

Diagnosis. Fitting in a complex of species characterized by having the thorax entirely yellow-rufous except for prominent black markings on the mesonotum and by having 2 small brown to black spots on lower margin of face. It fits very close to *spinata* Enderlein and the only differentiating character which I find is that the mesonotum in shining black in front of the suture and covered with short, black setae, rather than with a narrow yellow to rufous median vitta extending to anterior margin and with pale yellow setae along the vitta.

Otherwise yellow to rufous except for an opaque black spot in lower middle of front, subshining black ocellar triangle, brown to blackish front tibia and tarsus and a tiny spot of black behind each wing base. Wing very similar to those of *determinata* but with extreme apex varying from pale brown to subhyaline. Abdomen rufous. Sixth abdominal segment of ♀ subequal in length to 5th and basal segment of ovipositor subequal in length to terga 4–6. Male genitalia as in Fig. 7, with outer surstylus broadly rounded at apices and prensisetae of inner surstylus plainly visible from lateral view. For more detailed description refer to Perkins, 1939:4 and Malloch, 1939:333, latter as *papuaensis*.

Length: Body 9.5–10.5 mm; wings 8.0–9.0 mm.

Distribution. Widespread over the islands of New Guinea, New Britain, Maluku and Queensland, Australia.

Specimens examined. Types of 2 of the taxa. Several dozen specimens have been seen from a number of localities over Papua New Guinea and Irian Jaya and 1 specimen is on hand from Vudal Agric. College, New Britain, 28.VI.1966, J. Fox. McAlpine, *in litt.* records *selecta* from Queensland, Australia (as *papuaensis*).

Adrama spinata Enderlein

Fig. 8

Adrama spinata Enderlein, 1920, Zool. Jahrb., Syst. 43:360. Type-locality: New Britain, Bismarck Archipelago. Cotypes, 1♂, 1♀ are in ZMHB, I have studied these.

Adrama centralis Malloch, 1939, Ann. Mag. Nat. Hist. Ser. 11, vol. 4:247. Type-locality: Kovagambi, Guadalcanal. Three ♂♀ syntypes in BMNH, I have studied these and have confirmed the synonymy by Hering (1941b:53).

Diagnosis. Fitting description of *selecta* in all respects except with the black markings on the mesonotum somewhat reduced in size and divided in front of suture by median yellow vitta continuous to anterior margin. This character does show some variation, most specimens from the Solomon Islands have the yellow median vitta very prominent and this area is covered with short yellow setae, in some it is represented only by very faint line which evanesces anteriorly. One specimen on hand from Queensland, Australia fits here but has the mesonotal markings reduced to a pair of broad, presutural, longitudinal vittae continuous beyond suture as brown to blackish lines ending about half way between supraalar and postalar bristles.

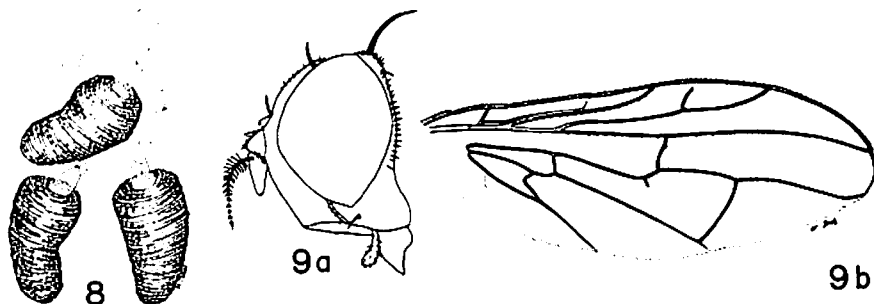


FIGURE 8. *Adrama spinata* Enderlein. ♀ spermathecae.

FIGURE 9. *Brandtomyia spuria* n. sp. a, head, lateral; b, wing.

I find no other distinguishing characters. Spermathecae of ♀ as in Fig. 8.

Length: Body 10.0–12.0 mm; wings 8.0–9.0 mm.

Distribution. Solomon and Bismarck Islands, New Guinea and Queensland, Australia.

Specimens examined. Ten specimens, SOLOMON ISLANDS: Bougainville, Kukugai Vill, 150 m, X.1960 (W.W. Brandt); Bougainville, Konga, II–III.1961 (W.W. Brandt); Guadalcanal, Betikama R, IX.1960 (W.W. Brandt); Guadalcanal, Sahuluatua, 200–400 m, I.1973 (N.L.H. Krauss); Santa Isabel, Molao, 28.VI.1960 (C.W. O'Brien); Malaita, Auki-Tangtalau, 25–200 m, 23.IX.1957 (J.L. Gressitt). Two from NEW BRITAIN: Upper Warangoi, Ilugi, 220 m, 15.XII.1962 (J. Sedlacek); Mt Sinewit, 3500 ft, 27.VI.–17.IX.1963 (W.W. Brandt); PNG: NEW GUINEA (SE) Lake Murray, 25.VII.1957 (W.W. Brandt) and 1 specimen from AUSTRALIA: Fishery Falls, nr Cairns, Queensland, I.1950 (N.L.H. Krauss).

Brandtomyia n. genus

Type of genus, *spuria* n. species.

Rather large, slender bodied, all yellow species, resembling *Ichneumonopsis* Hardy in habitus and by having a strong spurious vein on upper side of vein R_{2+3} but the resemblance is superficial, the 2 are not related. *Brandtomyia* is differentiated by having 4 scutellar bristles, not 2; front femur with 2 short, bristlelike posteroventral spines, rather than with 4 stout spines beyond middle of segment; 3rd antennal segment comparatively short, about $\frac{1}{2}$ as long as face, not elongate, equal to or longer than face; with 1 pair of moderately strong inferior fronto-orbital bristles on lower margin of front, rather than with inferior fronto-orbitals lacking; humeral bristles present, not lacking; pleurotergon haired, not bare; cell 1st M_2 cleaver shaped with a short appendage on underside of vein M_{1+2} just basad of r-m crossvein (Fig. 9b), rather than with sides of cell 1st M_2 parallel or nearly so and lacking such an appendage; outer vertical bristles weak, pale yellowish, rather setalike and outer scapulars lacking, rather than with outer vertical and outer scapulars well developed.

Head about as high as long with front gently sloping and antenna situated slightly above middle as seen in lateral view. Face vertical as seen in profile, raised into a prominent keel down middle and with sides sharply sloping into antennal furrows. Third antennal segment less than $3 \times$ longer than wide, slightly tapered apically and extending just over $\frac{1}{2}$ length of face (Fig. 9a). Arista long plumose. Front over $2 \times$ longer than wide, bare in median portion with 1 pair of incurved inferior fronto-orbital bristles near lower margin and with 1 strong pair of superior fronto-orbitals situated near upper $2/5$. Ocellar bristles lacking and with rather few, short, inconspicuous, pale postorbital setae on upper $\frac{1}{2}$ of head. A pair of small, pale yellowish, postocellar bristles present, subequal in size to outer verticals and widely spaced, well outside boundaries of ocellar triangle. With rather weak yellow-brown humeral bristles, about $2 \times$ larger than postocellar and outer vertical bristles. Lacking presutural, dorsocentral, prescutellar and sternopleural bristles. With 4 strong scutellars and with disc densely brown setose. Pleurotergon conspicuously covered with moderately long, pale, erect hairs. Legs rather slender, front femur with 2 short bristlelike posteroventral spines at apical $\frac{2}{3}$ of segment, other femora lacking ventral spines or bristles. Apical spur of mid tibia comparatively short, about $\frac{1}{4}$ as long as basitarsus. Mid tibia with a row of 6–8 short, brown, bristlelike, posterodorsal setae over middle of segment and hind tibia with a similar row of anterodorsal setae. Wing venation as noted above, with spur vein from upper side of R_{2+3} ending before costa and with last section of vein M_{1+2} slightly upcurved at apex and cell Cu with

moderately developed acute lobe at apex, $1/5-1/6$ as long as vein Cu_{1+1stA} . Vein R_{4+5} setose to about level with m crossvein. Metathoracic postcoxal area semimembranous, not with a sclerotized bridge. Basal segment of ♀ ovipositor rather elongate, about equal in length to remainder of abdomen.

Etymology. The generic epithet combines the Greek *myio*, equals fly with the name of the collector, W.W. Brandt.

Brandtomyia spuria n. species

Fig. 9a-b

Diagnosis. Readily distinguished from other Adramini by the generic characters given above.

Female. Entirely pale yellow to rufous with no dark markings except for faint tinge of brown in ground color of gena and thru middle of antennal furrow, also a faint tinge of brown over apical portion of basal segment of ♀ ovipositor. Middle of front bare except for a few inconspicuous pale setae. Arista long plumose. Occiput narrow, distinctly concave behind orbital rim over most of its length and prominently expanded, short lobate on lower hind margin directly behind gena (Fig. 9a). Genal bristles moderately developed, pale brownish yellow. Thorax almost $2 \times$ longer than wide as seen in dorsal view. Entire dorsal surface densely covered with short, subrecumbent, brown setae. Scapular bristles poorly developed, represented by 2 pale yellowish setae in middle and 1 on each side. One moderately strong mesopleural bristle, about equal in length to notopleurals. One weak, pale brownish yellow pteropleural bristle present, about equal in size to postocellar and outer verticals. Wing subhyaline with a faint brownish area over apical $1/3$ of wing just basad of m crossvein, leaving a hyaline margin along apex of cell 2nd M_2 (Fig. 9b). Basal portion of cell 1st M_2 narrowed, with margins straight sided and apical $1/2$ strongly expanded. First sternum about $2 \times$ longer than wide, sterna 2-5 about as long as wide. Sixth sternum about $3 \times$ wider than long, hind margin straight or nearly so and with 2 rather prominent pale brownish bristles on each side at about posterior $1/3$ of segment. Basal segment of ovipositor large, cylindrical, as noted above, piercer not extruded for study.

Length: Body, excluding ovipositor, 10.0 mm; basal segment of ovipositor 4.8 mm; wings 11.25 mm long by 4.0 mm wide.

Male unknown.

Etymology. The specific epithet is from the Latin *spurius*, equals false or spurious. Referring to the spurious veins in wing.

Holotype ♀ (BPBM 13513), NEW IRELAND: Kandan, 1.I.1960, (W.W. Brandt).

Crinitisophira n. genus

Type of genus, *bicolor* n. species.

Resembling *Pseudosophira* Malloch in habitus; having weak dorsocentral bristles; vein R_{4+5} bare except at base and wing markings and venation rather similar (Fig. 10, compare with Hardy, 1973:109, Fig. 62b). The resemblance is superficial, the two are apparently not closely related. *Crinitisophira* differs by having the pleurotergon haired, not pubescent; outer scapular bristles present, not absent; outer vertical bristles well developed, black, not weak hairlike; arista short plumose, not long plumose; 2 pairs of well developed, black, inferior fronto-orbital bristles, not with only 1 pair of weak pale yellow bristles; 3rd antennal segment equal in length to face, not about $1/2$ as long as face; dorsocentral bristles distinctly in front of a line

drawn between postalars, rather than in line with postalars; with a small sternopleural bristles present, ca. equal in size to pteropleural, rather than this bristle lacking and wing markings differing as shown in Fig. 10 and Hardy 1973:109 Fig. 62b.

Rather slenderly built flies with thorax $\frac{3}{4}$ longer than wide as seen in dorsal view and abdomen about $3 \times$ longer than side, including base of ovipositor, almost straight sided. Head about as long as high with front gently sloping and antenna situated near middle of head as seen in lateral view. Face almost straight, very gently convex in middle just above epistomal margin. Antennal grooves long, extending almost full length of face. Ocellar bristles weak, pale, hairlike and genal bristles weak, pale brownish yellow. With 2 pairs moderately strong, black, incurved inferior fronto-orbital bristles rather close together near lower margin of front and with 1 pair of strong superior fronto-orbitals situated at upper $\frac{1}{4}$. Two pairs of vertical bristles. Lacking following bristles: postocellar, humeral, presutural and prescutellar. Dorsocentrals about $\frac{1}{3}$ – $\frac{1}{4}$ distance between postalar and supraalars and comparatively weak, rather setalike, about $\frac{1}{3}$ size of inner postalar. Four strong scutellar bristles. Disc of scutellum flat, bare except for short, inconspicuous pale setae. Legs slender, lacking spines or prominent bristles except for large apical spine at end of middle tibia. Wing slender, cell Sc subequal in length to 2nd costal section and slightly less than $\frac{1}{2}$ as long as 4th costal section (cell R_1). Vein R_{2+3} straight, ending in costa well beyond level with m crossvein. Last sections of veins R_{4+5} and M_{1+2} parallel, crossvein r-m near apical $\frac{3}{5}$ of cell 1st M_2 . Cell Cu with a short acute lobe at apex, $\frac{1}{5}$ – $\frac{1}{6}$ as long as vein Cu_{1+1+2A} . Area behind hind coxae membranous, not with a sclerotized bridge.

Etymology. The generic epithet is from the Latin *crinitus*, equals hairy, with long hair; combined with *Sophira*. Referring to the long hair on the pleuroterga.

Crinitisophira bicolor new species

Fig. 10

Diagnosis. Readily differentiated from other known Adramini by the generic character given above.

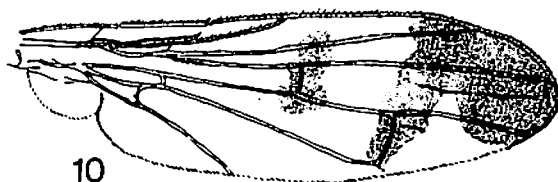
Female. Entirely pale colored, predominantly yellow to rufous except for dark brown apical $\frac{3}{5}$ – $\frac{2}{3}$ of antenna; with scutellum, humerus, notopleuron and posterior $\frac{1}{3}$ – $\frac{2}{5}$ of mesopleuron ivory-white, contrasting from yellow to rufous coloring of remainder of thorax. A broad subopaque, pale yellow, densely yellow-gray pollinose area extends longitudinally down middle of mesonotum in area bordered by dorsocentral bristles and from about middle of humerus almost to scutellum. Wing slender, hyaline basally and through posterior cells, otherwise faintly yellowish tinged and with prominent brown markings over apex, over m crossvein and with an isolated brown marking over r-m crossvein (Fig. 10). Abdominal sterna 1–3 longer than wide, 4 and 5 about as wide as long and 6 $2 \times$ wider than long. Sixth tergum nearly $\frac{3}{4}$ as long as 5th. Basal segment ♀ ovipositor about as long as terga 3–5. Piercer not extruded for study.

Length: Body 7.2 mm; wings 6.9 mm long by 1.8 mm wide.

Male unknown.

Etymology. The specific epithet is from the Latin *bi* equals 2 and color, referring to the bicolored thorax.

Holotype ♀ (BPBM 13514), MALUKU: S Batjan, N. Moluccas, 0 m, VI–VII.1953 (A.M.R. Wegner). One paratype (UH), same data as type and 1 paratype (AMS) PNG: NEW GUINEA (SE): Brown R, near Port Moresby, 21.X.1963 (D.K. McAlpine).

FIGURE 10. *Crinitisophira bicolor* n. sp. Wing.Genus *Ichneumonosoma* de Meijere

Ichneumonosoma de Meijere, 1914, Tijdsch. Entomol. 57:195. Type-species, *Lagarosia imitans* de Meijere. By original designation.

Axania Enderlein, 1920, Zool. Jahrb. 43:337. Type-species, *ichneumonea* Enderlein (=syn. of *imitans* de Meijere). By original designation.

This genus is poorly known, it is rare in collections and only the type specimens have previously been recorded. I have previously treated this as a Euphrantini (Hardy, 1983a:199) because of its resemblance to *Soita* Walker. By having a sclerotized metathoracic postcoxal bridge and lacking postocellar, genal, humeral, presutural, prescutellar and sternopleural bristles I prefer to place this in Adramini. It appears to fit near *Sosiopsila* Bezzi, from Africa, by having only basal scutellar bristles, and is differentiated by having a short but distinct pointed lobe at apex of cell Cu, rather than with apex vertical and no lobe developed; cell Sc subequal in length to 2nd costal cell, rather than about $\frac{1}{2}$ as long and wing with a narrow brown costal band, rather than with a prominent brown mark at apex (Munro, 1933:pl. III, Fig. 1); also by having the pleurotergon haired, not bare or pubescent and usually only 1 pair of inferior fronto-orbital bristles, not 2.

Head slightly broader than eye and than thorax as seen in dorsal view. Occiput convex, moderately swollen on lower portion. Face vertical or nearly so. Antenna inserted at about middle of head as seen in lateral view and slightly shorter than face. Arista long plumose. Typically with 1 pair of inferior fronto-orbital bristles. Lacking following head and body bristles: ocellar, postocellar, genal, humeral, presutural, prescutellar, dorsocentral and sternopleurals. Outer vertical bristles present and outer scapulars rudimentary. Only basal scutellars present, these strong and diverging. Vein R_{4+5} setose above to beyond level with m crossvein. Venation and markings as in Bezzi, 1920: Pl.XVII, Fig. 1. Femora not spinose ventrally. For more complete details refer to original description.

Three known species, all from Indonesia and New Guinea, with 1 also occurring in India.

KEY TO KNOWN SPECIES OF ICHNEUMONOSOMA

1. Only 2 black spots on mesonotum and pleura entirely rufous 2
With 4 black spots in front of suture and with conspicuous black marks on
pleura . . . India, Indonesia *imitans*
2. With a small black spot on each side of mesonotum behind humerus and
a short postsutural vitta on each side in line with dorsocentrals; 2 pairs
of inferior fronto-orbital bristles . . . Sulawesi *heinrichi*
With a large eyelike, shining black, presutural spot on each side of meso-
notum and thorax otherwise entirely yellow; 1 pair of inferior bristles
. . . Maluku, New Guinea *consors*

Ichneumonosoma consors (Walker)

n. comb.

Adrama consors Walker, 1861, J. Proc. Linn. Soc. Lond., Zool. 5:296. Type-locality Bachan (Batjan), Maluku. Type in BMNH. The specimen in the BMNH is labeled only "East Indies, Bachan" with Walker's handwritten label "*consors*." It contained no type label but is probably the specimen used by Walker. The original description indicated it was a ♀, the specimen is in poor condition, the abdomen is lost, the head has been broken off and glued onto a card. The legs and thorax are intact and the wings are in good condition except that one is broken at the tip.

Diagnosis. Fitting near *heinrichi* Hering and differing by having a large shining black, eyelike spot on each side of mesonotum and lacking black vittae, rather than having a small black spot behind humerus and a pair of short black postsutural vittae; also with only 1 pair of inferior fronto-orbital bristles, not with 2 pairs.

A large predominantly yellow to rufous species. Distinctive by having wing predominantly hyaline except for a narrow brown costal band and a tinge of yellow in cell Cu. Third costal section (Sc) narrow, almost $\frac{2}{3}$ as long as 4th. Veins R_{4+5} and M_{1+2} slightly diverging apically and crossvein r-m situated near apical $\frac{3}{5}$ of cell 1st M_2 (Hardy, 1959, pl. 11, Fig. 1). Thorax yellow to rufous except for a pair of characteristic eyelike black spots, one on each side just before suture. Pleurotergon covered with fine, pale, erect hairs. Head yellow except for a large polished black spot over ocellar triangle and upper median portion of occiput and vertex and an opaque black mark in lower median portion of front. Only 1 pair of inferior fronto-orbitals and 1 pair of superior fronto-orbitals. Third antennal segment about $3 \times$ as long as wide. Arista short plumose. Legs entirely yellow to rufous.

Length: wings 9.0–9.5 mm.

Distribution. Previously known only from the 1 specimen in BMNH.

Specimens examined, 1 ♂ PNG: NEW GUINEA (SE): Mt Lawes, Port Moresby, 1300 ft, 5.III–12.V.1963 (W.W. Brandt).

For descriptions of *heinrichi* Hering and *imitans* (de Meijere) refer to Hardy, 1983a:199.

Genus *Terastomyia* Bigot

Terastomyia Bigot, 1859, Revue Mag. Zool. (2). 11:311. Type-species, *lobifera* Bigot. By monotypy.

Neosiphira Hendel, 1914, Wien. Entomol. Ztg. 33:73; 1914, Abh. Zool.-Bot. Ges. Wien 8:137; 1914, Genera Insect. 157:76. Type-species, *Siphira distorta* Walker. By original designation.

Terastomyia, error.

Terastomyia Bigot has many characteristics in common with Phytalmiini but would appear to better fit in Adramini. It would differ from the concept of Phytalmiini of McAlpine and Schneider (1978:160) by not being slender bodied; four strong scutellar bristles; the sclerotized metathoracic bridge being comparatively short, not complete; seventh tergum and sternum of ♀ fused; cubital cell developed into a slender pointed lobe at apex; vein Sc with a more distinct bend upward at its apex; wing not slender basally and the vanes of the ♂ aedeagal apodeme not fused. Showing considerable resemblance to *Cleitamiphanes* Hering, *Colobostroter* Enderlein and *Ortaloptera* Hendel whose position has been controversial but because of the body bristle arrangement and lack of a sclerotized postcoxal metathoracic bridge are presently being placed in the subtribe Gastrozonina under Acanthonevrini. *Teras-*

tiomyia has been placed in Adramini and apparently best fits here because of the shining sclerotized bridge immediately behind the hind coxa, in combination with the reduction in number of body bristles, lacking: ocellar, postocellar, outer vertical, genal, dorsocentral, humeral, presutural, prescutellar, pteropleural and sternopleural. It fits in the grouping of genera which lacks ventral spines on the femora and which have the pleuroterga pubescent. Readily differentiated from all known Adramini by having only 1 pair of fronto-orbital bristles, lacking inferior bristles and by having the last section of vein M_{1+2} curved upwards at apex narrowing cell R_5 (Fig. 11).

Large showy flies, body 11.0–15.0 mm, mostly yellow to rufous in color with wing intensely yellow and with elaborate brown markings (Fig. 12d). Head broad, over $2 \times$ wider than long as seen in dorsal view and broader than anterior portion of thorax. Front as wide as long and equal in width to 1 eye. Face concave on lower median portion with epistomal margin rather strongly protruded. Occiput swollen, about $\frac{2}{3}$ as wide as eye. Gena broad, rounded below, about $\frac{2}{3}$ as long as 3rd antennal segment or, in ♂ *lobifera* Bigot, angulate to lobate on lower corners (Fig. 13c–d). Prementum bulbous, conspicuously developed. Frontal bristles represented by a strong pair of lower superior fronto-orbitals near middle of front. Third antennal segment about $3 \times$ longer than wide and extending $\frac{2}{3}$ length of face. Arista long plumose and with a row of moderately long hairs along inner margin. Dorsum of thorax, including scutellum, densely covered with erect brown setae. Scapular bristles well developed. Four strong scutellars, equal in size to postalars, supraalars, and notopleurals. Legs slender, lacking bristles or spines except for moderately developed apical spur on mid tibia. Second tarsomere of mid and hind legs with very short basal bare area, scarcely visible at point of articulation. Wing with vein R_1 elongate but ending in costa in different positions in 3 known species. With 3rd costal section about $\frac{1}{2}$ longer than 4th in *lobifera* and $8-9 \times$ longer than 4th in *distorta*. Vein R_{2+3} gently wavy. Apex of cell R_5 distinctly narrowed by upcurve of vein M_{1+2} . Cell Cu with a short pointed lobe at apex. Vein R_{4+5} nearly bare with only a few setae near base. Abdomen about $2 \times$ longer than wide with margins convex. Sixth tergum of ♀ short, about $1/5$ as long as 5th, as seen in situ. Spiracular openings situated at base of 7th segment. Piercer moderately slender with 2 pairs of prominent preapical setae. Three small oval spermathecae present. Male genitalia as seen in Fig. 12e, with cercus small and vanes of aedeagal apodeme arising separately on axis of apodeme.

Nothing is known of the biology of these flies. The adults are found sitting on ground cover vegetation in the rain forest. The genus is known only from Sulawesi and Maluku.

KEY TO KNOWN SPECIES OF TERASTIOMYIA

1. Face with a large black spot in middle; abdomen entirely rufous or with brown to black discoloration in median portions of terga 2–4 in ♂ of *distorta*; cell R_5 with hyaline markings beyond level of m crossvein. 2
 Face all yellow; abdomen with a yellow longitudinal vitta down middle, otherwise black; cell R_5 all dark brown beyond m crossvein (Fig. 11)
 . . . Maluku *clavigera*
2. Palpus black; vein R_1 very elongate, ending in costa well beyond level of upper edge of m crossvein; apex of cell R_5 scarcely as long as r-m crossvein; mesonotum entirely rufous; gena of ♂ not lobate; wing as in Fig. 12d . . . Sulawesi *distorta*

Palpus yellow; vein R_1 ending in costa well before level of m crossvein; apex of cell R_5 broader than length of r-m; mesonotum with a large black spot behind each humerus; gena of ♂ produced, lobelike (Fig. 13c-d); wing as in Fig. 13a . . . Sulawesi and Amboina *lobifera*

Terastiomys clavigera (Hardy)

Fig. 11

Neosophira clavigera Hardy, 1958, J. Kans. Entomol. Soc. 31:79. Type-locality: Sula Island, Maluku. Type ♂ in BMNH.

Diagnosis. Readily differentiated from other known species of *Terastiomys* by having the face all yellow and the abdomen black with a yellow longitudinal vitta down the middle. The wing markings are distinctive as in Fig. 11. The length of vein R_1 is intermediate between that of *lobifera* and *distorta*, ending about opposite upper end of m crossvein, with 4th costal section about $2\frac{1}{2} \times$ longer than 3rd and subequal in length to 5th. For more complete details refer to original description.

Length: Body 11.25 mm; wings 11.7 mm.

Distribution. Sula Island, Maluku.

Known only from type.

Terastiomys distorta (Walker)

Fig. 12a-f

Sophira distorta Walker, 1857, Trans. Entomol. Soc. Lond., n. ser. 4:230. Type-locality: Makasar (Ujung Padang), Sulawesi. Type ♂ in BMNH.

Enicoptera pictipennis Walker, 1860, J. Proc. Linn. Soc. Lond., Zool. 4:155. Type-locality: near Makasar, Sulawesi, Type ♂ in BMNH.

Diagnosis. The largest of the known species of the genus and readily differentiated by the very elongate vein R_1 and by the wing markings (Fig. 12d); by ♂ lacking lobate processes on gena or a fascicle of black bristles on front tibia and by both sexes being yellow to rufous except for black palpus and a dark brown to black vertical mark through middle of mesopleuron; a broad shining black mark over middle of front and vertex onto upper median portion of occiput; a black mark across middle of face; and brown to black on lower margin of gena and apex of labellum. Also ♂ abdomen predominantly black on dorsum.

Head as in Fig. 12a-b. Wing as in Fig. 12d, with vein R_1 elongate, extending well beyond level with m crossvein and in ♂ almost to level of apex of vein R_{4+5} (Fig. 12c). In ♀ 4th costal section less than $\frac{1}{4}$ as long as 3rd and about $\frac{3}{4}$ as long as 5th costal section. In ♂ 4th costal section about $\frac{1}{13}$ as long as 3rd and less than $\frac{1}{2}$ as long as 5th. Male genitalia as in Fig. 12e, with aedeagal apodemes broad, separated, widely forked. Basal segment of ♀ ovipositor slightly longer than terga

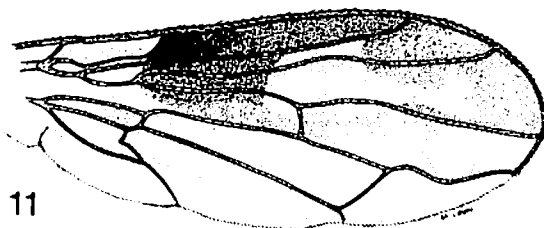


FIGURE 11. *Terastiomys clavigera* (Hardy). Wing.

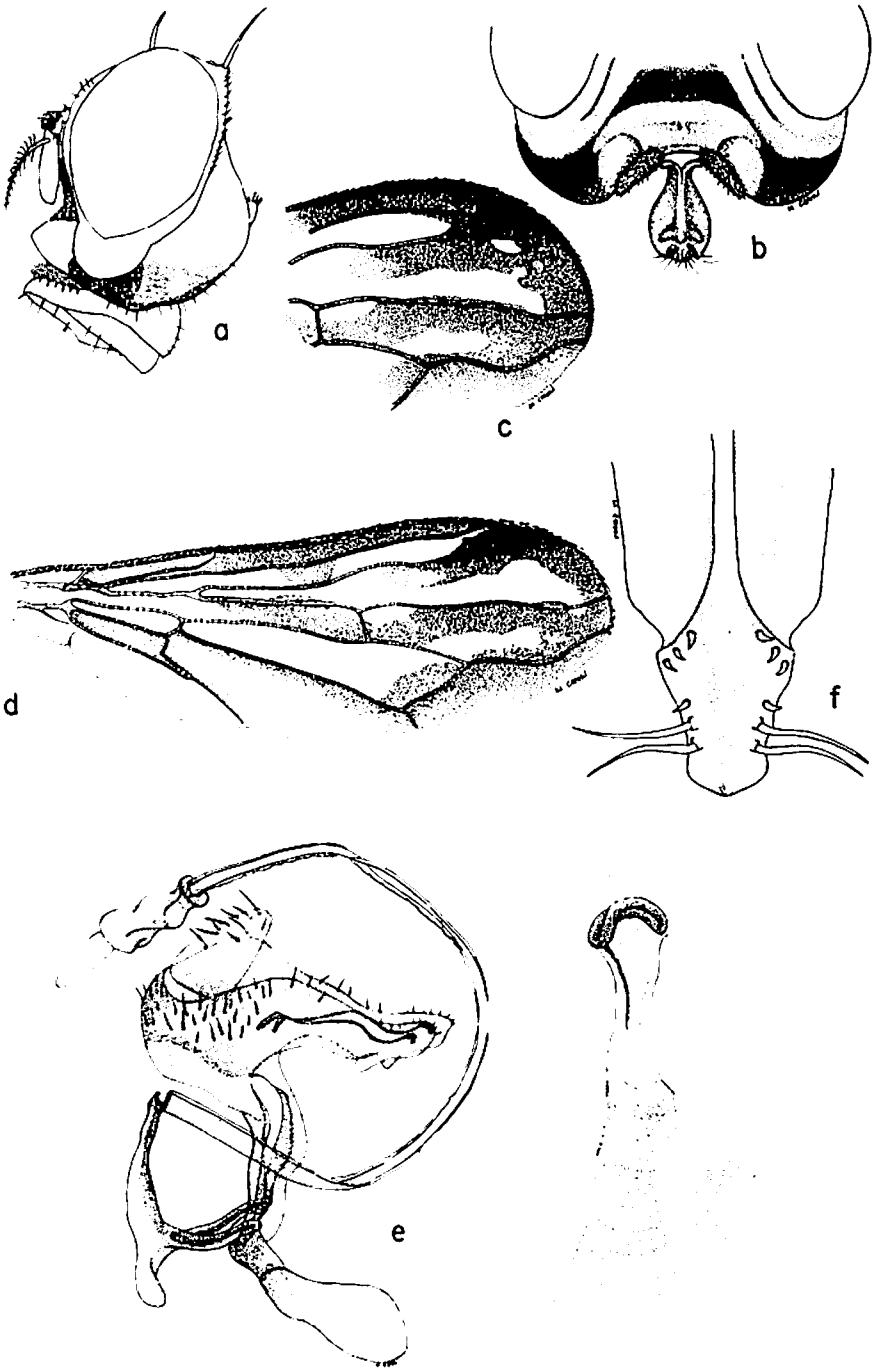


FIGURE 12. *Terstiomys distorta* (Walker). a, head, lateral; b, head, lower frontal; c, apex of ♂ wing; d, ♀ wing; e, ♂ genitalia; f, apex of ♀ ovipositor.

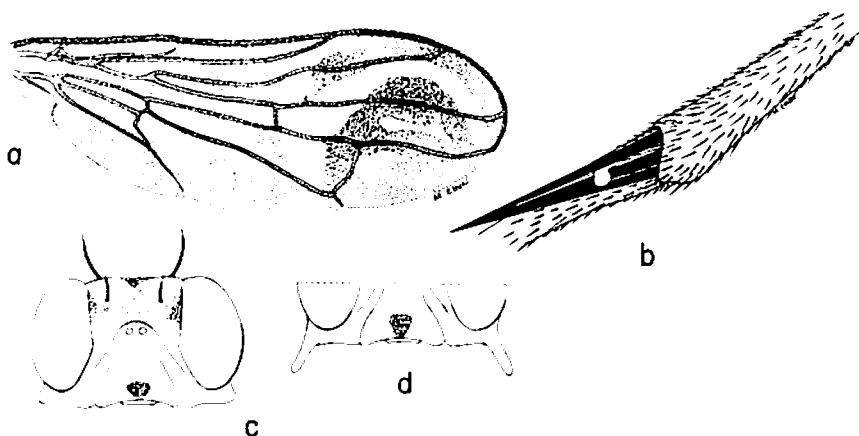


FIGURE 13. *Terastiomyia lobifera* Bigot. a, wing; b, apex of ♂ front tibia; c, ♂ head, frontal view; d, lower margin of head of ♂ variant, showing lobes on genae.

4–6 with spiracular openings at base of segment. Three small oval spermathecae present. Piercer about $7 \times$ longer than wide, with 2 pairs of strong and 1 pair of weak preapical setae (Fig. 12f). For more complete description refer to Hardy, 1958:80.

Length: Body and wings each 14.0–15.5 mm; ovipositor 8.64 mm; piercer 2.25 mm.

Distribution. Known only from the island of Sulawesi, Indonesia.

Specimens examined. Type ♂, also 2 ♀ Menado (BMNH and RNHL); also 5 specimens, 3♀ 2♂ from following localities on Sulawesi: Sadaunta, 65 km SE Palu, 650 m, VIII. 1975 (D.E. Hardy) and Lindu Valley, central Sulawesi, 960 m, VIII.1975 (D.E. Hardy).

Terastiomyia lobifera Bigot

Fig. 13a–d

Terastiomyia lobifera Bigot, 1859, Revue Mag. Zool (2)11:311. Type-locality: Celebes (Sulawesi). Type ♂ may be lost, it cannot be located at MNHP or UMO.

Enicoptera arcuosa Walker, 1860, J. Proc. Linn. Soc. Lond., Zool. 4:136. Type-locality: Makasar (Ujung Padang), Sulawesi. Syntypes 3♂, 1♀ BMNH.

Neosiphira ferruginea Hendel, 1914, Abh. Zool.-Bot. Ges. Wien 8(1):138. Type-locality: Amboina, Maluku. Type ♀ in NHMV.

Henicoptera arenosa Hering, 1938, Deutsch. Entomol. Zeitsch. 1938:412. Misspelling of *arcuosa* Walker.

Diagnosis. A very distinctive species easily defined by wing markings (Fig. 13a); by lobate ♂ gena; by having dorsum of thorax yellow except for large brown mark on each side above humerus and in ♂ continuing as a brown longitudinal vitta extending to hind margin of mesonotum at about level with outer corners of scutellum; by having a transverse band of black across front just anterior to frontal bristles, connecting orbits with black longitudinal band from middle of front, forming a T-shaped mark; mouthparts yellow and by ♂ having a fascicle of 3 closely placed strong, black, dorsal bristles at apex of each tibia (Fig. 13b).

Lobe on ♂ gena vary from short, blunt protrusion to long slender lobe (Fig. 13c-d). Vein R_1 short compared to other species of genus, ending before level with m crossvein, with 4th costal section slightly longer than 5th and about $\frac{2}{3}$ as long as 3rd costal section (Fig. 13a). Female ovipositor as in *distorta*. Male genitalia not studied.

For more complete descriptive details refer to Hardy, 1958:77, under *Neosophira arcuosa* (Walker).

Length: Body and wings each 10.5–12.0 mm.

Distribution. Known only from island of Sulawesi.

Specimens examined. Cotype series, 3♂1♀, BMNH and 2♂1♀ from following localities on Sulawesi: Noongan, 50 km S of Manado, 1200 m, 2–10.X.1973 (H. Kurahashi); Makasar, (Ujung Padang), 50 m, 28–30.XI.1973 (H. Kurahashi) and Lindu Valley, 960 m. VIII.1975 (D.E. Hardy).

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